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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,444	11/20/2001	James A. Aman		4158

54613 7590 01/11/2006

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EXAMINER

SENF1, BEHROOZ M

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/006,444	AMAN ET AL.	
	Examiner	Art Unit	
	Behrooz Senfi	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments (filed, 10/17/2005) have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment (filed, 10/17/2005) canceled claims 1 – 33 and added new claims 34 – 49.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 34 – 35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Paff (US 5,164,827).

Regarding claim 34, Paff discloses, an automated system for tracking the movement of multiple objects within a predefined area, (figs. 2 – 3, col. 8, lines 6 - 10) comprising: a first set of cameras forming a fixed area tracking matrix for first detecting the motion of each object in (X, Y) space (figs. 2 – 3, camera MD) and first algorithm operated on a computer system responsive to the fixed area tracking matrix for determining the (X, Y) location of each object, (figs. 5 and 6, controller 10, includes a mathematical processor to perform mathematical calculation with respect to position of the subject) and a second set of cameras forming a movable volume tracking matrix responsive to the determined (X, Y) locations from the first algorithm for controllably

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detecting the motion of each object in (X, Y, Z) space (fig. 6, slave cameras, col. 4, lines 50 – 60) and a second algorithm operated on the computer system responsive to the second set of cameras for determining the (X, Y, Z) dimensional characteristics of each object, (fig. 6, each slave camera has the same component configuration as the master camera, each has a controller 10, which includes a mathematical processor to perform mathematical calculation based on the information received from the master camera).

Paff reference is silent in regards to, forming a database representative of each object's locations, movements and dimensional characteristics.

However, Paff reference teaches surveillance system with monitoring station 11, which views the event and is capable of controlling and transmitting/receiving, messages to and from cameras.

Since the Paff teaching is used in a surveillance environment; therefore, it would have been obvious to one skilled in the art that, the monitoring station would have a server or storage, for storing and forming a data base representing the event including all the information with respect to the object, for later review and analysis.

Regarding claim 35, Paff reference teaches, wherein the combined fields of view from all cameras in the first set of cameras form a single contiguous and approximately coplanar field of view that is substantially parallel to the ground surface within the tracking area (fig. 2, coplanar field of view of the MD camera is substantially parallel to the ground).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 36 - 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paff (US 5,164,827) in view of Leis (US 6,061,644).

Regarding claims 36 and 37, Paff reference teaches, an automated system for Tracking multiple objects using multiple sets of cameras, as discussed with respect to claim 34 above.

It is noted that, Paff reference is silent in regards to, one or more energy sources emitting non-visible energy that is detected by both the first set of area tracking cameras and the second set of volume tracking cameras, and markers adhered onto multiple location on each object that reflect the non-visible energy.

However such features are well known and used in the prior art of the record as evidenced by Leis '644 (i.e. fig. 1, 24L and 24R "infrared energy" and markers, col. 4, lines 22 – 24 and col. 2, lines 61 - 67).

Therefore, taking the combined teaching of Paff and Leis as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to modify the tracking system of Paff by placing markers on each objects that reflects non-visible energy/light as taught by Leis '644 for more sufficient accuracy of tracking multiple objects. Doing so would improve the accuracy of object position and orientation

determination. And as for the, third algorithm operated on the computer system responsive to the non-visible energy reflected off the markers for forming a database of related coordinates of each marker on each object, see (i.e. fig. 1, element 28, col. 4, lines 17 – 52, col. 6, lines 4 – 20 of Leis).

Regarding claims 38 – 39 and 42 - 43, the limitations claimed, at least one uniquely encoded marker adhered to each object and a forth algorithm operated on the computer system, are substantially similar to claims 36 - 37 and have the same result, therefore the grounds for rejecting claims 36 - 37 also applies here.

Regarding claims 40 - 41, the limitations claimed have been analyzed and rejected with respect to claims 36 - 37.

Regarding claims 44 and 48, the limitations claimed are substantially similar to claim 36, therefore the grounds for rejecting claim 36 also applies here.

Regarding claim 45, combination of Paff and Leis teaches, arranging a set of cameras into a regular configuration such that their combined fields of view form a single contiguous coplanar field of view that is substantially parallel to the ground surface within the tracking area (fig. 2, coplanar field of view of the MD camera is substantially parallel to the ground, of Paff), and using the combined images captured by the first set of cameras to first detect and track at least one marker attached to each object, have been discussed with respect to claim 36.

Regarding claim 46, the limitations claimed are the method, corresponding to the system of claim 36, which have been analyzed and rejected with respect to claim 36.

Regarding claims 47 and 49, combination of Paff and Leis teaches, reflection of narrow band of non-visible energy (col. 1, lines 49 – 50, lines 64 – 66 and col. 4, lines 15 – 17 of Leis).

Contact

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571) 272-7339**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mehrdad Dastouri** can be reached on **(571) 272-7418**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks


Washington, D.C. 20231

Or faxed to:

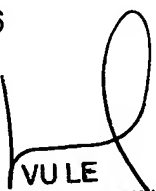
(571) 273-8300

Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street, Alexandria, Va. 22314.

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(571) 272-6000**.

B. M. S. 

1/7/2006


VU LE
PRIMARY EXAMINER